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Stomach Content Analysis of Marine Benthic Fish from Arctic Canada

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ABSTRACT

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Tabulations are provided of the diets of 12 species of demersal marine fish from various locations in the Canadian Arctic, comprising a grand total of 267 prey species, mainly invertebrates. The total number of prey species taken by a single fish species ranged from 9 to 91, and the mean number per stomach from 2.0 to 9.4. The most important prey were Crustacea, most frequently epibenthic or planktonic species; Polychaeta, mainly the larger species; and Mollusca, notably the cropped siphons of *Macoma calcarea*. Generally, only a few species comprised the bulk of the food. Most of the fish had a predominantly benthic or epibenthic diet, a notable exception being *Triglops pingeli* which ate zooplankton almost exclusively at the three sites from which it was collected. To a lesser extent, *Triglops murrayi*, *Icelus spatula* and *Liparis gibbus* also fed planktonically.

Key Words: demersal fish, diet, feeding, zoobenthos, zooplankton, invertebrates, Arctic Canada

RÉSUMÉ

Atkinson, E. G. and J. A. Percy. 1991. Stomach content analysis of marine benthic fish from Arctic Canada. Can. Data Rep. Fish. Aquat. Sci. 840: 34 p.

Des compilations sont produites des régimes alimentaires de 12 espèces de poissons marins démersaux de divers endroits de l'Arctique canadien, qui sont composés, toutes espèces confondues, de 267 espèces de proie, surtout des invertébrés. Le nombre total de proies par espèce de poisson variait de 9 à 91, et le nombre moyen par estomac, de 2,0 à 9,4. Les proies les plus importantes étaient des crustacés, le plus souvent des espèces épibenthiques ou planctoniques; des polychètes, surtout les plus grosses espèces; et des mollusques, notamment *Macoma calcarea* dont les poissons consomment les siphons. De façon générale, la plus grande partie du régime alimentaire des individus n'était composée que d'un petit nombre d'espèces de proie. La plupart des poissons se nourrissait principalement d'organismes benthiques ou épibenthiques; *Triglops pingeli*, dont on a observé qu'il se nourrissait presque exclusivement de plancton aux trois sites où il a été échantillonné, constitue à cet égard une exception notable. *Triglops murrayi*, *Icelus spatula* et *Liparis gibbus* se nourrissaient aussi de plancton, mais dans une moindre mesure.

Mots clés: poissons démersaux, régime alimentaire, nutrition, zoobenthos, zooplancton, invertébrés, Arctique canadien.

INTRODUCTION

Although most demersal marine fish in the Arctic are small, commercially unimportant species, they are ecologically significant in northern marine food webs. They form a large part of the diets of the thick-billed murre and black guillemot, and are consistently taken by Atlantic cod, Arctic char, anadromous brook trout, ringed and bearded seals, beluga and narwhal. Despite this, little information is available about the diets of Arctic benthic fish in general, and from Canadian waters in particular. This report presents detailed tabulations of the stomach contents of twelve species of demersal marine fish collected in Canadian Arctic waters during the course of various fisheries and benthic investigations by the Arctic Biological Station. Many of these are known to be important prey for birds, mammals and pelagic and anadromous fish.

MATERIALS AND METHODS

The collection sites are grouped in two general areas: in the eastern Arctic, sites C, D-G, K and L are located in coastal waters of southeast Baffin Island; in the western Arctic sites A, B, and H-J are in coastal areas of the southeast Beaufort Sea (Table 1). Specimens were collected from near shore to depths of 90m by trawl, gill net and dredge, during the day in July and August between 1963 and 1979 (Table 2). Collections were preserved in 10% formalin which was later replaced with

70% ethanol. Sex was determined and total length was measured to the nearest millimeter. The stomachs were removed, opened, and the contents rinsed into vials with 70% ethanol. They were subsequently sorted, identified to species when possible, enumerated, dried to constant weight at 105°C, and weighed to the nearest 0.01 mg. The empty stomach and the remainder of the fish were similarly dried and weighed.

For each food species of each population of fish, the following were calculated: a) percent of total dry weight of stomach contents, b) percent of total number of all prey eaten, c) percent frequency of occurrence in stomachs containing food. To facilitate comparisons, these values have been combined as an Index of Relative Importance: IRI = [(a + b) c] 100, which has a maximum value of 200. This is a modification of an index reviewed by Hyslop (1980).

Tables 3 to 10 are tabulations of the stomach contents of the fish populations studied. For ease of comparison, each table presents the results for all species from a single location. The data include both sexes and all lengths; most samples included almost equal numbers of both sexes and a range of sizes up to typical adult length. The initial values for each major food taxon (eg. ANNELIDA: Polychaeta) represent all prey species within that taxon, for each fish species. Minor discrepancies (± 0.3%) arise in the summations of percent total dry weight and percent total number due to rounding.

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REFERENCES

HYSLOP, E.J. 1980. Stomach contents analysis - A review of methods and their application. J. Fish Biol. 17:411-429.

Table 1. Location and collection data for fish populations used in the study

Site	N. Lat.	W. Long.	Depth m	Gear
A	69°25.6′	125°40.5′	26	trawl
B	69°49.7′	123°05.5′	81	trawl
C	63°12′	68°11′	55	trawl
D*	62°48′	65°36′	90	trawl
E*	62°40′	65°33′	27	trawl
F*	62°36′	65°18′	55	trawl
G	63°09′	68°05′	52	trawl
H*	69°32.8′	134°00′	shore	gill net
I*	69°32.6′	133°52.3′	shore	gill net
J*	69°35.1′	134°06′	shore	gill net
K	63°18.6′	64°08.2′	31	dredge
L	63°19.1′	64°10.2′	shore	gill net

* Samples taken from Sites D, E, and F and from H, I, and J were combined and are subsequently referred to as coming from Sites D-F and H-J, respectively.

Table 2. Sample size and length data for fish populations available for stomach content analysis

Species	Site	Sample size	Length mm		No. stomachs with food (N)
			Mean	Range	
Aspidophoroides olriki	B	19	49	38-62	19
	C	19	51	38-85	19
Gymnelus viridis	D-F	9	176	75-238	7
Gymnocanthus tricuspis	A	153	50	36-112	151
	K	36	83	37-119	36
Icelus bicornis	G	65	57	44-94	64
Icelus spatula	C	14	69	46-105	14
	K	17	38	26-58	17
Liopsetta glacialis	H-J	23	247	120-304	23
Liparis gibbus	D-F	10	110	62-136	10
Lumpenus fabricii	A	53	99	59-178	53
Lycodes polaris	C	76	68	39-181	70
Myoxocephalus scorpius	L	23	223	156-310	23
Triglops murrayi	C	52	75	53-100	48
Triglops pingeli	A	21	72	57-100	19
	D-F	40	77	61-156	40
	G	64	83	59-121	63

Table 3. Food species consumed by Gt) *Gymnocanthus tricuspis* (N-151), Lf) *Lumpenus fabricii* (N-53), Tp) *Triglops pingeli* (N-19) collected at Site A, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	Gt	23.7	12.0	73.5	26
	Lf	56.2	30.9	100.0	87
	Tp	2.8	3.2	15.8	1
Ampharete acutifrons	Gt	0.0	0.1	0.7	0
	Lf	1.7	0.6	5.7	0
Antinoella sp.	Lf	1.4	0.5	15.1	0
Apistobranchus tullbergi	Gt	0.1	0.1	1.3	0
Brada granosa	Lf	0.1	0.1	1.9	0
Chone sp.	Gt	0.1	0.3	3.3	0
	Lf	0.1	0.1	3.8	0
Diplocirrus longisetosus	Gt	5.6	2.6	29.1	1
	Lf	21.9	2.3	58.5	14
Eteone longa	Gt	0.2	0.2	2.0	0
Euchone papillosa	Gt	0.0	0.1	0.7	0
	Lf	0.7	1.0	9.4	0
Exogone naidina	Lf	0.1	0.6	13.2	0
Gattyana cirrosa	Gt	2.1	1.2	13.2	0
	Lf	0.0	0.1	1.9	0
Harmothoe imbricata	Tp	2.7	1.1	5.3	0
Harmothoe sp.	Gt	0.9	0.1	0.7	0
Laonice cirrata	Gt	0.1	0.1	0.7	0
Lumbrineris sp.	Gt	2.3	1.3	3.3	0
	Lf	0.8	0.3	7.5	0
Melaenus loveni	Gt	1.5	0.1	0.7	0
Micronephthys minuta	Gt	1.4	2.8	27.8	1
	Lf	11.9	21.3	86.8	29
	Tp	0.1	1.1	5.3	0
Parahesione sp.	Gt	0.4	0.5	4.6	0
	Lf	0.1	0.1	3.8	0
Pholoe minuta	Gt	0.1	0.4	4.0	0
	Lf	1.9	1.3	30.2	1
Scoloplos armiger	Gt	0.3	0.2	2.0	0
	Lf	2.7	1.1	18.9	1
Sabellides octocirrata	Gt	0.0	0.1	0.7	0
	Lf	1.7	0.1	1.9	0
Stauronereis caecus	Gt	0.4	1.2	6.6	0
	Lf	0.5	0.9	11.3	0
Terebellides stroemi	Gt	6.2	0.4	4.6	0
	Lf	0.1	0.1	1.9	0
Tharyx acutus	Lf	0.0	0.1	1.9	0
Trichobranchus glacialis	Gt	0.9	0.1	1.3	0
	Lf	9.8	0.3	9.4	1

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta					
polychaete (unidentified)	Gt	1.1	0.4	4.0	0
	Lf	0.3	0.1	1.9	0
	Tp	0.1	1.1	5.3	0
ARTHROPODA: Crustacea (all)	Gt	65.8	63.5	96.7	125
	Lf	26.4	38.4	96.2	62
	Tp	94.6	88.3	89.5	164
Crustacea: Amphipoda (all)	Gt	47.5	47.7	90.7	86
	Lf	21.5	16.3	84.9	32
	Tp	38.0	57.0	89.5	85
Acanthostepheia behringiensis	Gt	0.1	0.1	0.7	0
Acanthostepheia malmgreni	Gt	0.7	0.1	1.3	0
Aceroides l. latipes	Gt	0.5	0.8	2.6	0
	Lf	0.3	0.4	5.7	0
Ampelisca eschrichti	Gt	1.3	0.1	0.7	0
Anonyx nugax	Gt	0.1	0.1	0.7	0
	Lf	0.0	0.1	1.9	0
Arrhinopsis longicornis	Gt	0.0	0.1	0.7	0
Arrhis phyllonyx	Gt	0.3	0.1	0.7	0
Bathymedon obtusifrons	Gt	0.0	0.1	0.7	0
Byblis gaimardi	Gt	0.3	0.2	2.6	0
	Lf	0.2	0.1	1.9	0
	Tp	1.2	2.2	5.3	0
Caprella linearis	Gt	0.0	0.1	0.7	0
	Tp	0.1	1.1	5.3	0
Corophium clarencense	Gt	0.0	0.1	1.3	0
	Lf	0.1	0.2	5.7	0
Dyopedos porrectus	Gt	0.4	1.4	12.6	0
	Tp	0.6	5.4	10.5	1
Goesia depressa	Gt	0.3	0.1	1.3	0
Guernea nordenskioldi	Lf	0.1	0.2	3.8	0
Ischyrocerus anguipes	Lf	0.1	0.3	3.8	0
	Tp	0.6	12.9	21.1	3
Ischyrocerus latipes	Gt	1.2	0.1	1.3	0
	Tp	2.0	1.1	5.3	0
Ischyrocerus megachier	Tp	15.7	6.5	15.8	4
Ischyrocerus megalops	Lf	0.0	0.2	1.9	0
Ischyrocerus nanoides	Gt	0.0	0.1	0.7	0
Maera loveni	Gt	3.1	0.2	2.0	0
Melita dentata	Gt	0.5	0.2	2.0	0
	Lf	0.6	0.2	5.7	0
	Tp	0.1	1.1	5.3	0
Melita quadrispinosa	Lf	1.3	0.1	1.9	0

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Amphipoda					
Metopa bruzelii	Gt	0.0	0.1	0.7	0
	Lf	0.0	0.3	1.9	0
	Tp	0.1	4.3	5.3	0
Metopa invalida	Tp	0.1	2.2	10.5	0
Metopa robusta	Gt	0.0	0.5	2.0	0
Metopa sinuata	Tp	0.1	1.1	5.3	0
Metopella longimana	Gt	0.1	1.1	8.6	0
	Lf	0.0	0.1	1.9	0
Monoculodes intermedius	Gt	0.3	0.1	0.7	0
Monoculodes longirostris	Gt	0.0	0.1	0.7	0
Monoculodes schneideri	Gt	0.0	0.1	0.7	0
Monoculodes vibei	Gt	0.0	0.1	0.7	0
Onisimus litoralis	Tp	0.7	2.5	5.3	0
Orchomene minuta	Gt	0.2	0.3	4.0	0
	Lf	0.0	0.1	1.9	0
Paradulichia typica	Gt	0.0	0.2	1.3	0
	Tp	0.4	1.1	5.3	0
Parapleustes assimilis	Lf	0.0	0.1	3.8	0
Photis tenuicornis	Lf	0.0	0.3	3.8	0
Pleustes panopla	Gt	0.0	0.1	1.3	0
Pontoporeia femorata	Gt	2.4	0.9	7.3	0
	Lf	3.1	1.0	15.1	1
Protomedia fasciata	Gt	30.8	38.5	81.5	56
	Lf	14.8	11.1	67.9	18
	Tp	1.9	3.2	10.5	1
Protomedia grandimana	Gt	0.3	0.1	0.7	0
	Lf	0.4	0.1	1.9	0
Westwoodilla brevicalcar	Gt	0.1	0.8	6.6	0
	Lf	0.4	1.3	20.8	0
	Tp	0.1	1.1	5.3	0
Westwoodilla megalops	Gt	0.0	0.1	0.7	0
amphipod (unidentified)	Gt	3.9	1.2	8.6	0
	Lf	0.1	0.3	3.8	0
	Tp	13.7	11.8	42.1	11
Crustacea: Cirripedia (all)	Gt	0.0	0.1	1.3	0
	Lf	0.0	0.1	1.9	0
	Tp	-	-	-	-
Balanus crenatus	Lf	0.0	0.1	1.9	
Balanus sp.	Gt	0.0	0.1	1.3	0

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Copepoda (all)	Gt	0.5	1.0	7.3	0
	Lf	0.3	6.6	50.9	4
	Tp	0.9	17.2	21.1	4
Amonardia arctica	Lf	0.0	0.1	1.9	0
Bradya typica	Gt	0.0	0.2	2.0	0
	Lf	0.1	1.9	26.4	1
Calanus glacialis	Gt	0.0	0.1	1.3	0
Calanus hyperboreus	Gt	0.3	0.2	2.0	0
	Lf	0.0	0.1	1.9	0
	Tp	0.7	2.2	10.5	0
Cyclopina gracilis	Lf	0.0	0.1	1.9	0
Cyclopina schneideri	Gt	0.0	0.1	0.7	0
	Lf	0.0	0.1	1.9	0
Dactylopodia sp.	Lf	0.0	0.1	1.9	0
Danielssenia steffanssoni	Lf	0.1	1.0	18.9	0
Diarthrodes sp.	Lf	0.0	0.4	3.8	0
Euryte longicauda	Gt	0.0	0.1	0.7	0
Eurytemora herdmani	Lf	0.0	0.1	1.9	0
Halectinosoma finmarchicum	Lf	0.0	0.1	1.9	0
Halectinosoma neglectum	Lf	0.0	0.1	1.9	0
Halectinosoma sarsi	Lf	0.0	0.3	5.7	0
Harpacticus superflexus	Gt	0.0	0.1	1.3	0
	Lf	0.0	0.6	13.2	0
Harpacticus uniremis	GT	0.0	0.1	0.7	0
Laophonte elongata	Lf	0.0	0.1	1.9	0
Limnocalanus macrurus	Lf	0.0	0.1	1.9	0
Robertsonia tenuis	Lf	0.0	0.2	3.8	0
Pseudomolgus leptostylis	Tp	0.0	1.2	5.3	0
Stenhelia arctica	Gt	0.0	0.1	0.7	0
	Lf	0.0	0.4	9.4	0
Stenhelia sp.	Lf	0.0	0.7	11.3	0
Tisbe furcata	Lf	0.0	0.2	5.7	0
	Tp	0.2	14.0	15.8	2
copepod (unidentified)	Gt	0.1	0.1	0.7	0
	Lf	0.0	0.3	1.9	0
Crustacea: Cumacea (all)	Gt	17.8	14.1	63.6	20
	Lf	2.9	2.6	47.2	3
	Tp	1.2	3.2	5.3	0
Brachydiastylis resima	Lf	0.6	0.4	7.5	0
Diastylis goodsiri	Gt	0.2	0.1	0.7	0
Diastylis rathkei	Gt	2.9	1.5	14.6	1
	Lf	0.3	0.4	11.3	0
Diastylis sp.	Lf	0.2	0.2	5.7	0
Eudorella emarginata	Gt	0.1	0.1	0.7	0
Eudorella truncatula	Lf	0.3	0.1	1.9	0

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Cumacea					
Lamprops fuscata	Gt	0.3	0.7	6.6	0
	Lf	0.1	0.2	5.7	0
Leptostylis ampullacea	Lf	0.3	0.1	1.9	0
Leptostylis sp.	Gt	12.0	8.0	35.8	7
	Lf	0.3	0.1	3.8	0
	Tp	1.2	3.2	5.3	0
Leucon fulvus	Gt	0.0	0.1	0.7	0
Leucon nasica	Gt	0.7	0.5	5.3	0
	Lf	0.4	0.3	3.8	0
Leucon nasicoides	Gt	1.2	2.0	14.6	0
	Lf	0.4	0.6	15.1	0
Leucon sp.	Gt	0.3	1.2	9.3	0
	Lf	0.1	0.3	7.5	0
Crustacea: Decapoda (all)	Gt	-	-	-	-
	Lf	-	-	-	-
	Tp	0.6	1.2	5.3	0
decapod (unidentified)	Tp	0.6	1.2	5.3	0
Crustacea: Isopoda (all)	Gt	0.0	0.1	1.3	0
	Lf	1.0	6.4	37.7	3
	Tp	-	-	-	-
Eugerda globiceps	Lf	1.0	6.3	37.8	3
Munna sp.	Gt	0.0	0.1	0.7	0
Pleurogonium spinosissimum	Gt	0.0	0.1	0.7	0
isopod (unidentified)	Lf	0.0	0.1	1.9	0
Crustacea: Mysidacea (all)	Gt	0.0	0.1	1.3	0
	Lf	-	-	-	-
	Tp	53.9	9.7	31.6	20
Mysis oculata	Gt	0.0	0.1	1.3	0
Mysis relicta	Tp	53.9	9.7	31.6	20
Crustacea: Ostracoda (all)	Gt	0.0	0.1	1.3	0
	Lf	0.1	0.5	13.2	0
	Tp	-	-	-	-
Cythereis sp.	Lf	0.0	0.1	3.8	0
Cytheridea papillosa	Gt	0.0	0.1	0.7	0
	Lf	0.1	0.3	5.7	0
Paracytherois arcuata	Lf	0.0	0.1	1.9	0
ostracod (unidentified)	Gt	0.0	0.1	0.7	0
	Lf	0.0	0.1	1.9	0

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Tanaidacea (all)	Gt	0.0	0.3	3.3	0
	Lf	0.6	5.9	58.5	4
	Tp	-	-	-	-
Leptognathia sp.	Gt	0.0	0.1	0.7	0
	Lf	0.0	0.4	7.5	0
Pseudotanais forcipatus	Lf	0.1	0.9	9.4	0
Typhlotanais finmarchicus	Gt	0.0	0.2	2.6	0
	Lf	0.5	4.4	54.7	3
CHORDATA: Ascidiacea (all)	Gt	0.3	1.1	6.0	0
	Lf	0.7	2.4	3.8	0
	Tp	0.4	3.2	10.5	0
Aplidium glabrum	Gt	0.0	0.1	1.3	0
Rhizomolgula globularis	Gt	0.0	0.1	1.3	0
ascidian (unidentified)	Gt	0.3	0.9	3.3	0
	Lf	0.7	2.4	3.8	0
	Tp	0.4	3.2	10.5	0
CHORDATA: Osteichthyes (all)	Gt	-	-	-	-
	Lf	-	-	-	-
	Tp	1.8	2.2	5.3	0
fish (unidentified)	Tp	1.8	2.2	5.3	0
COELENTERATA: Anthozoa (all)	Gt	-	-	-	-
	Lf	0.9	0.1	1.9	0
	Tp	-	-	-	-
anthozoan (unidentified)	Lf	0.9	0.1	1.9	0
MOLLUSCA: Gastropoda (all)	Gt	2.7	0.1	1.3	0
	Lf	0.4	0.3	7.5	0
	Tp	-	-	-	-
Cylichna alba	Lf	0.2	0.1	1.9	0
Retusa obtusa	Lf	0.2	0.3	7.5	0
gastropod (unidentified)	Gt	2.7	0.1	1.3	0
MOLLUSCA: Pelecypoda (all)	Gt	7.3	23.0	63.6	19
	Lf	14.2	18.5	83.0	27
	Tp	0.3	3.2	15.8	1
Macoma calcarea	Gt	7.3	22.8	63.6	19
	Lf	13.4	18.1	83.0	26
	Tp	0.3	3.2	15.8	1
Hiatella arctica	Gt	0.0	0.1	1.3	0
Yoldia hyperborea	Gt	0.0	0.1	0.7	0
	Lf	0.9	0.4	7.5	0

Table 3. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
NEMATODA (all)	Gt	0.0	0.1	0.7	0
	Lf	0.8	9.0	77.4	7
	Tp	-	-	-	-
nematode (unidentified)	Gt	0.0	0.1	0.7	0
	Lf	0.8	9.0	75.5	7
PRIAPULIDA (all)	Gt	-	-	-	-
	Lf	0.3	0.1	1.9	0
	Tp	-	-	-	-
Priapulus caudatus	Lf	0.3	0.1	1.9	0

Table 4. Food species consumed by *Aspidophoroides olriki* (N=19) collected at Site B, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	0.8	1.8	21.1	1
Cirratulus cirratus	0.3	0.5	5.3	0
Parahesione sp.	0.5	0.9	10.5	0
polychaete (unidentified)	0.1	0.5	5.3	0
ARTHROPODA: Crustacea (all)	7.2	18.2	63.2	16
Crustacea: Amphipoda (all)	3.9	8.1	52.6	6
Caprella linearis	0.2	0.5	5.3	0
Metopella longimana	0.0	0.5	5.3	0
Paradulichia typica	2.4	3.2	26.3	1
Photis tenuicornis	0.3	1.4	10.5	0
Stenopleustes pulchellus	0.0	0.5	5.3	0
Westwoodilla megalops	0.5	0.5	5.3	0
amphipod (unidentified)	0.5	1.8	15.8	0
Crustacea: Copepoda (all)	0.1	1.4	15.8	0
Bradya typica	0.0	0.5	5.3	0
Euryte longicauda	0.0	0.5	5.3	0
Tisbe furcata	0.0	0.5	5.3	0
Crustacea: Cumacea (all)	0.2	0.5	5.3	0
Leucon sp.	0.2	0.5	5.3	0
Crustacea: Isopoda (all)	2.2	4.5	31.6	2
Eugerda globiceps	0.3	0.9	10.5	0
Eurycope mutica	1.2	2.3	10.5	0
Munna kroyeri	0.6	1.4	10.5	0
Crustacea: Ostracoda (all)	0.9	3.2	10.5	0
Cythereis sp.	0.2	0.5	5.3	0
Macrocythere simplex	0.7	2.7	10.5	0
MOLLUSCA: Pelecypoda (all)	92.0	80.6	94.7	163
Macoma calcarea	91.8	80.2	94.7	163
Yoldia hyperborea	0.2	0.5	5.3	0

Table 5. Food species consumed by Ao) *Aspidophoroides olriki* (N=19), Is) *Icelus spatula* (N=14), Lp) *Lycodes polaris* (N=70) and Tm) *Triglops murrayi* (N=48) collected at Site C, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	Ao	0.4	0.5	5.3	0
	Is	10.0	3.6	28.6	4
	Lp	6.9	5.0	38.6	5
	Tm	4.3	0.5	8.3	0
Antinoella sp.	Is	10.0	3.6	28.6	4
	Lp	0.2	0.2	1.4	0
Artacama proboscidea	Tm	4.1	0.3	4.2	0
Asabellides sp.	Lp	0.4	0.5	2.9	0
Chone sp.	Lp	0.8	0.8	5.7	0
Diplocirrus longisetosus	Lp	0.2	0.2	1.4	0
Parahesione sp.	Lp	3.2	2.0	17.1	1
Sphaerosyllis erinaceus	Ao	0.4	0.5	5.3	0
polychaete (unidentified)	Lp	2.2	1.3	11.4	0
	Tm	0.1	0.3	4.2	0
ARTHROPODA: Crustacea (all)	Ao	74.4	74.6	100.0	149
	Is	89.9	94.5	100.0	184
	Lp	33.7	65.3	98.6	98
	Tm	93.5	92.6	100.0	186
Crustacea: Amphipoda (all)	Ao	59.5	63.7	100.0	123
	Is	33.8	31.5	57.1	37
	Lp	21.2	5.9	30.0	8
	Tm	5.8	4.0	41.7	4
Anonyx nugax	Ao	0.5	0.5	5.3	0
	Lp	10.8	0.7	2.9	0
	Tm	0.0	0.1	2.1	0
Apherusa glacialis	Ao	0.3	0.5	5.3	0
Arrhinopsis longicornis	Lp	0.9	0.5	4.3	0
Byblis gaimardi	Ao	0.1	1.0	10.5	0
Dyopedos porrectus .	Ao	19.1	17.2	42.1	15
	Is	0.2	2.7	14.3	0
	Lp	1.1	0.5	4.3	0
	Tm	1.6	1.2	16.7	0
Gitanopsis bispinosa	Ao	0.0	0.5	5.3	0
Ischyrocerus anguipes	Ao	0.3	1.0	10.5	0
Ischyrocerus megalops	Tm	0.1	0.1	2.1	0
Maera loveni	Is	22.3	4.5	21.4	6
Melita dentata	Is	0.3	0.9	7.1	0
	Lp	0.5	0.2	1.4	0
Metopa bruzelii	Lp	0.0	0.2	1.4	0

Table 5. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Amphipoda					
Metopa glacialis	Ao	1.1	1.0	10.5	0
	Is	0.0	0.9	7.1	0
Metopa robusta	Lp	0.0	0.2	1.4	0
Metopella longimana	Ao	0.3	1.0	10.5	0
	Is	0.0	1.8	7.1	0
Metopella nasuta	Ao	0.3	1.5	15.8	0
Monoculodes intermedius	Is	0.3	2.7	14.3	0
	Lp	0.1	1.2	5.7	0
Monoculodes latimanus	Is	0.2	0.9	7.1	0
Paradulichia typica	Ao	37.0	39.2	84.2	64
	Is	0.7	8.1	28.6	3
	Lp	1.6	0.8	5.7	0
	Tm	0.6	0.9	10.4	0
Parapleustes assimilis	Tm	0.0	0.1	2.1	0
Pardalisca cuspidata	Is	2.1	0.9	7.1	0
	Tm	0.0	0.1	2.1	0
Paroediceros lynceus	Is	1.7	2.7	14.3	1
	Lp	0.2	0.3	2.9	0
Pleustes media	Is	2.6	1.8	7.1	0
Rhachotropis inflata	Is	2.9	2.7	14.3	1
Rhachatropis oculata	Lp	0.0	0.2	1.4	0
Rozinante fragilis	Tm	0.0	0.1	2.1	0
Stenopleustes pulchellus	Ao	0.4	0.5	5.3	0
Syrrhoe crenulata	Is	0.6	0.9	7.1	0
	Lp	2.2	0.5	4.3	0
Themisto libellula	Tm	2.0	0.5	2.1	0
Westwoodilla brevicalcar	Lp	0.0	0.3	2.9	0
amphipod (unidentified)	Lp	3.6	0.3	2.9	0
	Tm	1.5	0.8	12.5	0
Crustacea: Copepoda (all)	Ao	0.3	4.4	31.6	1
	Is	0.1	6.3	28.6	2
	Lp	5.7	56.6	75.7	47
	Tm	10.8	79.0	77.1	69
Aetideopsis rostrata	Is	0.1	0.9	7.1	0
	Lp	0.1	0.3	2.9	0
Ameira longipes	Lp	0.1	0.5	4.3	0
Bradya typica	Lp	0.9	13.4	51.4	7
Bradypontius typicus	Lp	0.0	0.2	1.4	0
Calanus glacialis	Is	0.1	1.8	7.1	0
	Tm	5.8	9.5	60.4	9
Calanus hyperboreus	Tm	0.1	0.3	4.2	0
Cyclopina gracilis	Lp	0.0	0.2	1.4	0
Cyclopina longicornis	Lp	0.1	0.8	4.3	0

Table 5. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Copepoda					
Cyclopina schneideri	Lp	0.6	8.4	40.0	4
	Tm	0.0	0.3	4.2	0
Daniellsenia steffansoni	Lp	0.0	0.3	2.9	0
Euryte longicauda	Lp	0.1	0.7	4.3	0
	Tm	0.0	0.1	2.1	0
Halectinosoma neglectum	Lp	0.0	0.3	2.9	0
Halectinosoma sarsi	Lp	0.1	1.7	8.6	0
Harpacticus superflexus	Tm	0.0	0.3	4.2	0
Harpacticus uniremis	Lp	0.2	0.7	5.7	0
	Tm	0.1	0.5	6.3	0
Microcalanus pygmaeus	Lp	0.5	0.5	4.3	0
Oncaea minuta	Lp	0.0	0.2	1.4	0
Parathalestris jacksoni	Tm	0.0	0.3	6.3	0
Pseudocalanus sp.	Lp	0.0	0.2	1.4	0
Pseudophaenna typica	Lp	0.1	0.7	4.3	0
Rhyncothalestris helgolandica	Lp	0.0	0.2	1.4	0
Scutellidium arthuri	Tm	0.0	0.3	4.2	0
Spinocalanus sp.	Lp	0.0	0.2	1.4	0
Stenhelia arctica	Lp	0.1	0.5	4.3	0
Stephos arcticus	Lp	0.0	0.3	2.9	0
Tisbe furcata	Ao	0.3	4.4	31.6	1
	Is	0.0	3.6	28.6	1
	Lp	3.0	25.0	44.3	12
	Tm	4.8	67.4	56.5	41
copepod (unidentified)	Lp	0.2	1.3	1.4	0
Crustacea: Cumacea (all)	Ao	3.3	1.5	15.8	1
	Is	0.4	11.7	28.6	3
	Lp	1.7	1.0	8.6	0
	Tm	0.6	1.2	16.7	0
Diastylis scorpioides	Tm	0.0	1.2	16.7	0
Leptostylis ampullacea	Lp	0.7	0.2	1.4	0
Leucon nasicoides	Ao	3.3	1.5	15.8	1
	Is	0.4	11.7	28.6	3
	Lp	0.9	0.7	5.7	0
	Tm	0.6	0.1	14.6	0
Leucon pallidus	Lp	0.1	0.2	1.4	0
Crustacea: Decapoda (all)	Ao	-	-	-	-
	Is	-	-	-	-
	Lp	-	-	-	-
	Tm	12.2	2.1	20.8	3
Pandalus borealis	Tm	3.9	0.1	2.1	0
Spirontocaris sp.	Tm	8.3	1.9	18.8	2

Table 5. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Euphausiacea (all)	Ao	-	-	-	-
	Is	18.1	4.5	35.7	8
	Lp	4.1	0.2	1.4	0
	Tm	57.3	4.0	39.6	24
Thysanoessa inermis	Is	18.1	4.5	35.7	8
	Lp	4.1	0.2	1.4	0
	Tm	57.3	4.0	39.6	24
Crustacea: Isopoda (all)	Ao	3.1	2.5	21.1	1
	Is	0.0	0.9	7.1	0
	Lp	0.4	0.8	7.1	0
	Tm	0.0	0.5	8.3	0
Eurycope mutica	Ao	2.7	2.0	15.8	1
	Is	0.0	0.9	7.1	0
	Lp	0.1	0.3	2.9	0
Pleurogonium spinosissimum	Ao	0.4	0.5	5.3	0
isopod (unidentified)	Lp	0.3	0.5	4.3	0
	Tm	0.0	0.5	8.3	0
Crustacea: Mysidacea (all)	Ao	8.2	2.5	15.8	2
	Is	37.5	39.6	71.4	55
	Lp	0.2	0.3	2.9	0
	Tm	6.8	1.8	18.8	2
Erythrops erythrophthalma	Ao	8.2	2.5	15.8	2
	Is	37.5	39.6	71.4	55
	Lp	0.2	0.3	2.9	0
	Tm	6.1	1.0	10.4	1
Mysis oculata	Tm	0.7	0.8	8.3	0
Crustacea: Ostracoda (all)	Ao	-	-	-	-
	Is	-	-	-	-
	Lp	0.4	0.5	2.9	0
	Tm	-	-	-	-
Philomedes globosus	Lp	0.4	0.5	2.9	0
CHAETOGNATHA (all)	Ao	-	-	-	-
	Is	-	-	-	-
	Lp	-	-	-	-
	Tm	0.9	1.0	16.7	0
Sagitta elegans	Tm	0.9	1.0	16.7	0
CHORDATA: Ascidiacea (all)	Ao	-	-	-	-
	Is	-	-	-	-
	Lp	-	-	-	-
	Tm	1.3	5.3	33.3	2
ascidian (unidentified)	Tm	1.3	5.3	33.3	2

Table 5. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
MOLLUSCA: Pelecypoda (all)	Ao	24.4	24.0	84.2	41
	Is	0.1	1.8	14.3	0
	Lp	59.3	29.2	85.7	76
	Tm	0.2	0.5	8.3	0
Macoma calcarea	Ao	24.4	24.0	84.2	41
	Is	0.1	1.8	14.3	0
	Lp	44.2	22.9	82.9	56
	Tm	0.2	0.5	8.3	0
Macoma moesta	Lp	1.7	1.8	14.3	1
Yoldia hyperborea	Lp	5.5	0.3	2.9	0
pelecypod (unidentified)	Lp	7.9	4.2	30.0	4
NEMATODA (all)	Ao	-	-	-	-
	Is	-	-	-	-
	Lp	0.2	0.5	2.9	0
	Tm	-	-	-	-
nematode (unidentified)	Lp	0.2	0.5	2.9	0
PLATYHELMINTHES: Turbellaria (all)	Ao	0.5	0.5	5.3	0
	Is	-	-	-	-
	Lp	-	-	-	-
	Tm	-	-	-	-
turbellarian (unidentified)	Ao	0.5	0.5	5.3	0
SIPUNCULA (all)	Ao	0.2	0.5	5.3	0
	Is	-	-	-	-
	Lp	-	-	-	-
	Tm	-	-	-	-
sipunculan (unidentified)	Ao	0.2	0.5	5.3	0

Table 6. Food species consumed by Gv) *Gymnelis viridis* (N=7), Lg) *Liparis gibbus* (N=10), and Tp) *Triglops pingeli* (N=40) collected at Sites D-F, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	Gv	99.4	72.5	71.4	123
	Lg	23.8	5.4	50.0	15
	Tp	0.0	0.2	2.5	0
Antinoella sp.	Gv	0.1	2.5	14.3	0
Asabellides sp.	Gv	33.0	12.5	28.6	13
Harmothoe imbricata	Gv	57.4	55.0	57.1	64
	Lg	23.8	5.4	50.0	15
Harmothoe oerstedi	Gv	8.8	2.5	14.3	2
Spio sp.	Tp	0.0	0.2	2.5	0
ARTHROPODA: Crustacea (all)	Gv	0.6	17.5	28.6	5
	Lg	66.2	89.7	100.0	156
	Tp	49.6	41.6	85.0	78
Crustacea: Amphipoda (all)	Gv	0.6	15.0	14.3	2
	Lg	44.7	70.1	100.0	115
	Tp	27.9	7.1	62.5	22
Ampelisca eschrichti	Lg	2.2	0.5	10.0	0
	Tp	0.3	0.2	2.5	0
Anonyx laticoxae	Lg	10.9	1.1	10.0	1
Anonyx nugax	Lg	1.9	2.2	30.0	1
Boeckosimus edwardsi	Lg	5.3	6.5	60.0	7
Caprella linearis	Lg	0.1	0.5	10.0	0
Caprella septentrionalis	Lg	9.1	6.5	30.0	5
Dyopedos porrectus	Tp	0.1	0.4	5.0	0
Gitanopsis inermis	Gv	0.0	2.5	14.3	0
Ischyrocerus anguipes	Gv	0.5	10.0	14.3	1
	Lg	10.4	46.2	90.0	51
Melita dentata	Lg	2.4	1.6	20.0	0
Metopa bruzelii	Tp	0.0	1.0	10.0	0
Monoculodes intermedius	Lg	0.1	0.5	10.0	0
Monoculodes latimanus	Lg	0.1	1.1	20.0	0
Monoculodes longirostris	Tp	0.3	0.2	2.5	0
Monoculopsis longicornis	Lg	0.0	0.5	10.0	0
Orchomene minuta	Lg	0.2	0.5	10.0	0
	Tp	0.0	0.2	2.5	0
Parapleustes bicuspis	Gv	0.1	2.5	14.3	0
Paroediceros lynceus	Tp	2.0	0.6	7.5	0
Protomedia fasciata	Tp	0.0	0.2	2.5	0
Protomedia grandimana	Lg	0.1	0.5	10.0	0
Socarnes bidenticulatus	Lg	0.3	0.5	10.0	0

Table 6. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Amphipoda					
Themisto libellula	Lg	1.5	0.5	10.0	0
	Tp	24.6	2.6	27.5	7
Westwoodilla brevicalcar	Tp	0.1	1.0	7.5	0
Westwoodilla megalops	Tp	0.1	0.2	2.5	0
amphipod (unidentified)	Lg	0.1	0.5	10.0	0
	Tp	0.6	0.4	5.0	0
Crustacea: Cirripedia (all)	Gv	-	-	-	-
	Lg	0.1	4.9	10.0	1
	Tp	-	-	-	-
Balanus sp. (larvae)	Lg	0.1	4.9	10.0	1
Crustacea: Copepoda (all)	Gv	-	-	-	-
	Lg	0.0	1.1	10.0	0
	Tp	3.0	32.1	55.0	19
Bradya typica	Tp	0.0	0.2	2.5	0
Calanus glacialis	Tp	3.0	30.9	55.0	19
Calanus hyperboreus	Tp	0.0	0.2	2.5	0
Pseudocalanus sp.	Tp	0.0	0.4	5.0	0
Thalestris brunnea	Lg	0.0	1.1	10.0	0
Tisbe furcata	Tp	0.0	0.4	2.5	0
Crustacea: Cumacea (all)	Gv	-	-	-	-
	Lg	0.1	2.2	30.0	1
	Tp	0.6	0.2	2.5	0
Brachydiastylis resima	Tp	0.6	0.2	2.5	0
Leucon nasicoides	Lg	0.1	1.6	20.0	0
Leucon sp.	Lg	0.0	0.5	10.0	0
Crustacea: Decapoda (all)	Gv	-	-	-	-
	Lg	8.1	7.1	50.0	8
	Tp	0.2	0.4	2.5	0
Eualus fabricii	Lg	1.8	1.1	10.0	0
Lebbeus polaris	Lg	0.4	0.5	10.0	0
Sclerocrangon boreas	Lg	5.4	3.8	10.0	1
	Tp	0.2	0.4	2.5	0
decapod (unidentified)	Lg	0.4	1.6	20.0	0
Crustacea: Euphausiacea (all)	Gv	-	-	-	-
	Lg	-	-	-	-
	Tp	14.4	1.4	12.5	2
Thysanoessa inermis	Tp	14.4	1.4	12.5	2

Table 6. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Isopoda (all)	Gv	0.0	2.5	14.3	0
	Lg	11.9	3.8	40.0	6
	Tp	-	-	-	-
Arcturus baffini	Lg	1.7	2.7	20.0	1
Munna fabricii	Gv	0.0	2.5	14.3	0
Synidotea marmorata	Lg	10.3	1.1	20.0	2
Crustacea: Mysidacea (all)	Gv	-	-	-	-
	Lg	1.3	0.5	10.0	0
	Tp	3.5	0.4	2.5	0
Mysis oculata	Lg	1.3	0.5	10.0	0
	Tp	3.5	0.4	2.5	0
CHAETOGNATHA (all)	Gv	-	-	-	-
	Lg	-	-	-	-
	Tp	0.8	0.6	5.0	0
Sagitta elegans	Tp	0.8	0.6	5.0	0
CHORDATA: Ascidiacea (all)	Gv	-	-	-	-
	Lg	-	-	-	-
	Tp	14.7	40.9	62.5	35
ascidian (larvae)	Tp	14.7	40.9	62.5	35
CHORDATA: Osteichthyes (all)	Gv	-	-	-	-
	Lg	3.5	0.5	10.0	0
	Tp	-	-	-	-
fish (unidentified)	Lg	3.5	0.5	10.0	0
MOLLUSCA: Gastropoda (all)	Gv	-	-	-	-
	Lg	6.3	3.3	10.0	1
	Tp	34.7	15.7	37.5	19
Spiratella helicina	Lg	6.3	3.3	10.0	1
	Tp	34.7	15.7	37.5	19
MOLLUSCA: Pelecypoda (all)	Gv	-	-	-	-
	Lg	-	-	-	-
	Tp	0.2	1.4	15.0	0
Macoma calcarea	Tp	0.1	1.0	10.0	0
Macoma moesta	Tp	0.0	0.2	2.5	0
Musculus niger	Tp	0.0	0.2	2.5	0
NEMATODA (all)	Gv	0.0	10.0	28.6	3
	Lg	0.0	1.1	10.0	0
	Tp	-	-	-	-
nematode (unidentified)	Gv	0.0	10.0	28.6	3
	Lg	0.0	1.1	10.0	0

Table 7. Food species consumed by Ib) *Icelus bicornis* (N=64) and Tp) *Triglops pingeli* (N=63) collected at Site G, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	Ib	2.5	3.6	34.4	2
	Tp	7.2	1.8	7.9	1
Ampharete acutifrons	Ib	0.2	0.4	3.1	0
Artacama proboscidea	Tp	1.5	0.4	1.6	0
Asabellides sp.	Ib	0.0	0.1	1.6	0
Enipo gracilis	Ib	0.0	0.1	1.6	0
Flabelligera affinis	Ib	0.2	0.1	1.6	0
Harmothoe imbricata	Ib	0.2	0.1	1.6	0
Leaena abranchiata	Tp	2.3	0.4	1.6	0
Nicomache sp.	Ib	0.1	0.5	6.3	0
Parahesione sp.	Ib	0.0	0.3	3.1	0
Pionosyllis compacta	Ib	0.0	0.1	1.6	0
Polydora quadrilobata	Ib	0.0	0.1	1.6	0
Sabellides octocirrata	Ib	0.0	0.1	1.6	0
Scalibregma inflatum	Tp	3.4	1.1	4.8	0
Syllis fasciata	Ib	0.4	0.4	4.7	0
polychaete (unidentified)	Ib	1.2	1.1	14.1	0
ARTHROPODA: Crustacea (all)	Ib	96.3	89.9	100.0	186
	Tp	82.1	71.1	95.2	146
Crustacea: Amphipoda (all)	Ib	60.6	31.7	90.6	84
	Tp	67.1	31.5	74.6	74
Acanthonotozoma serratum	Ib	0.3	0.3	3.1	0
Aceroides l. latipes	Ib	0.1	0.1	1.6	0
Amphithopsis longicaudata	Ib	0.0	0.1	1.6	0
Andaniella pectinata	Ib	0.0	0.1	1.6	0
	Tp	0.0	0.7	3.2	0
Anonyx nugax	Ib	1.3	1.7	17.2	1
Apherusa megalops	Ib	0.0	0.1	1.6	0
	Tp	0.0	0.4	1.6	0
Arrhinopsis longicornis	Ib	0.0	0.3	3.1	0
Byblis gaimardi	Tp	0.3	0.4	1.6	0
Dyopedos porrectus	Ib	1.3	14.5	71.9	11
	Tp	0.0	1.5	6.3	0
Gammaropsis maculata	Ib	0.0	0.1	1.6	0
Gitanopsis arctica	Ib	0.0	0.1	1.6	0
Haploops laevis	Ib	0.0	0.3	3.1	0
Hyperia galba	Ib	0.3	0.1	1.6	0
Ischyrocerus anguipes	Ib	0.1	0.4	4.7	0
	Tp	0.0	1.1	1.6	0
Ischyrocerus megachier	Ib	0.0	0.1	1.6	0
Ischyrocerus megalops	Ib	0.0	0.1	1.6	0

Table 7. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Amphipoda					
Maera loveni	Ib	48.0	0.1	1.6	1
Metopa bruzelii	Tp	0.0	0.4	1.6	0
Metopa glacialis	Ib	0.0	0.1	1.6	0
Metopa groenlandica	Ib	0.0	0.1	1.6	0
Metopella longimana	Ib	0.0	0.1	1.6	0
Metopella nasuta	Ib	0.0	0.8	7.8	0
Monoculodes intermedius	Ib	0.0	0.4	4.7	0
Monoculodes tuberculatus	Ib	0.1	0.4	3.1	0
	Tp	0.0	0.4	1.6	0
Onisimus litoralis	Tp	1.5	1.1	4.8	0
Orchomene groenlandica	Ib	0.5	0.6	6.3	0
	Tp	0.0	0.4	1.6	0
Orchomene macroserrata	Ib	0.2	1.0	7.8	0
Paradulichia typica	Ib	0.2	2.5	20.3	1
	Tp	0.0	1.5	6.3	0
Parapleustes assimilis	Ib	0.0	0.1	1.6	0
Pardalisca cuspidata	Ib	1.2	0.8	9.4	0
Paroediceros propinquus	Tp	0.0	0.4	1.6	0
Paroediceros lynceus	Ib	1.7	0.6	7.8	0
	Tp	0.3	0.4	1.6	0
Schisturella pulchra	Ib	0.4	0.3	3.1	0
Stenopleustes pulchellus	Ib	0.0	0.1	1.6	0
Syrrhoe crenulata	Ib	0.9	0.9	10.9	0
Themisto libellula	Tp	63.0	19.0	46.0	38
Tryphosella schneideri	Ib	0.3	0.3	1.6	0
Unciola leucopis	Ib	1.3	0.5	6.3	0
Westwoodilla brevicalcar	Ib	0.1	1.3	12.5	0
	Tp	0.0	0.4	1.6	0
Westwoodilla megalops	Tp	0.0	1.1	4.8	0
amphipod (unidentified)	Ib	2.1	2.3	26.6	1
	Tp	1.7	2.6	11.1	0
Crustacea: Copepoda (all)	Ib	2.2	35.8	82.8	31
	Tp	1.9	28.9	54.0	17
Bradypontius groenlandicus	Ib	0.0	0.3	1.6	0
Bradypontius magniceps	Tp	0.0	0.3	1.6	0
Calanus glacialis	Ib	1.0	5.3	40.6	3
	Tp	1.5	11.4	41.3	5
Calanus hyperboreus	Ib	0.7	6.5	40.6	3
	Tp	0.3	1.1	4.8	0
Cervinia synarthra	Ib	0.0	0.4	4.7	0
Harpacticus superflexus	Ib	0.0	0.3	3.1	0
Harpacticus uniremis	Ib	0.0	0.3	3.1	0
	Tp	0.0	5.1	15.9	1

Table 7. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Copepoda					
Jaschnovia tolli	Ib	0.0	0.5	1.6	0
Pseudocalanus sp.	Ib	0.0	0.1	1.6	0
	Tp	0.0	0.3	1.6	0
Pseudophaenna typica	Ib	0.0	0.8	4.7	0
Thalestris brunnea	Tp	0.0	1.5	3.2	0
Tisbe furcata	Ib	0.4	20.9	34.4	7
	Tp	0.1	9.2	15.9	1
Zaus goodsiri	Ib	0.0	0.3	3.1	0
Zaus spinatus	Ib	0.0	0.1	1.6	0
Crustacea: Cumacea (all)	Ib	0.3	2.2	21.9	1
	Tp	0.3	5.1	17.5	1
Diastylis scorpioides	Ib	0.1	0.1	1.6	0
Diastylis sp.	Ib	0.1	0.3	3.1	0
	Tp	0.0	0.4	1.6	0
Eudorella emarginata	Tp	0.0	0.4	1.6	0
Eudorella sp.	Ib	0.0	0.1	1.6	0
Leptostylis ampullacea	Ib	0.1	0.1	1.6	0
Leucon fulvus	Ib	0.0	0.1	1.6	0
	Tp	0.0	1.1	3.2	0
Leucon nasicoides	Ib	0.1	0.5	4.7	0
	Tp	0.2	2.2	7.9	0
Leucon pallidus	Ib	0.0	0.1	1.6	0
Leucon sp.	Ib	0.0	0.4	4.7	0
	Tp	0.0	1.1	4.8	0
Petalosarsia declivis	Ib	0.0	0.1	1.6	0
cumacean (unidentified)	Ib	0.0	0.3	3.1	0
Crustacea: Decapoda (all)	Ib	0.7	0.1	1.6	0
	Tp	-	-	-	-
Sclerocrangon boreas	Ib	0.7	0.1	1.6	0
Crustacea: Euphausiacea (all)	Ib	-	-	-	-
	Tp	12.4	4.0	15.9	3
Thysanoessa inermis	Tp	12.4	4.0	15.9	3
Crustacea: Isopoda (all)	Ib	31.3	19.3	71.9	36
	Tp	-	-	-	-
Arcturus baffini	Ib	28.8	4.2	10.9	4
Desmosoma lineare	Ib	0.0	0.1	1.6	0
Eurycope mutica	Ib	0.1	2.2	20.3	0
Janira tricornis	Ib	0.1	0.3	3.1	0
Munna fabricii	Ib	0.0	0.3	3.1	0
Munna kroyeri	Ib	0.2	1.8	12.5	0

Table 7. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Isopoda					
Munna limicola	Ib	0.1	0.8	9.4	0
Munna sp.	Ib	0.1	0.5	6.3	0
Munnopsis typica	Ib	1.2	0.3	3.1	0
Pleurogonium spinosissimum	Ib	0.7	9.0	40.6	0
isopod (unidentified)	Ib	0.0	0.1	1.6	0
Crustacea: Mysidacea (all)	Ib	-	-	-	-
	Tp	0.8	1.5	4.8	0
Erythrops erythrophthalma	Tp	0.2	0.4	1.6	0
Mysis oculata	Tp	0.6	1.1	3.2	0
Crustacea: Nebaliacea (all)	Ib	1.2	0.1	1.6	0
	Tp	-	-	-	-
Nebalia sp.	Ib	1.2	0.1	1.6	0
Crustacea: Ostracoda (all)	Ib	0.0	0.3	3.1	0
	Tp	-	-	-	-
Philomedes globosus	Ib	0.0	0.1	1.6	0
ostracod (unidentified)	Ib	0.0	0.1	1.6	0
Crustacea: Tanaidacea (all)	Ib	0.0	0.4	3.1	0
	Tp	-	-	-	-
Cryptocope arctica	Ib	0.0	0.4	3.1	0
CHAETOGNATHA (all)	Ib	0.4	0.1	1.6	0
	Tp	5.3	6.6	27.0	3
Sagitta elegans	Ib	0.4	0.1	1.6	0
	Tp	5.3	6.6	27.0	3
CHORDATA: Ascidiacea (all)	Ib	0.1	1.1	14.1	0
	Tp	0.6	19.0	38.1	7
ascidian (larvae)	Ib	0.1	1.1	14.1	0
	Tp	0.6	19.0	38.1	7
CHORDATA: Osteichthyes (all)	Ib	-	-	-	-
	Tp	4.2	0.7	3.2	0
Myoxocephalus scorpioides	Tp	2.4	0.4	1.6	0
fish (unidentified)	Tp	1.9	0.4	1.6	0
MOLLUSCA: Gastropoda (all)	Ib	0.1	0.3	3.1	0
	Tp	-	-	-	-
Cingula arenaria	Ib	0.1	0.3	3.1	0

Table 7. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
MOLLUSCA: Pelecypoda (all)	Ib	0.5	4.7	42.2	2
	Tp	0.0	0.8	3.2	0
Macoma calcarea	Ib	0.4	4.3	40.6	2
	Tp	0.0	0.8	3.2	0
pelecypod (unidentified)	Ib	0.0	0.4	1.6	0
PORIFERA (all)	Ib	0.0	0.1	1.6	0
	Tp	-	-	-	-
Tetilla sibirica	Ib	0.0	0.1	1.6	0

Table 8. Food species consumed by *Liopsetta glacialis* (N=23) collected at Sites H-J, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	61.3	49.8	91.3	101
Ampharete vega	61.3	49.8	91.3	101
ARTHROPODA: Crustacea (all)	0.9	5.6	78.3	5
Crustacea: Amphipoda (all)	0.3	3.7	69.6	3
Acanthostepheia malmgreni	0.0	0.0	4.3	0
Aceroides l. latipes	0.0	0.5	30.4	0
Boeckosimus affinis	0.1	0.6	21.7	0
Gammarus oceanicus	0.1	0.4	17.4	0
Onisimus litoralis	0.0	0.1	8.7	0
Paroediceros lynceus	0.0	0.1	8.7	0
Pontoporeia affinis	0.0	0.2	17.4	0
Pontoporeia femorata	0.1	1.9	52.2	1
Crustacea: Cumacea (all)	0.1	1.2	34.8	0
Diastylis sulcata	0.1	1.2	34.8	0
Crustacea: Isopoda (all)	0.5	0.6	43.5	1
Mesidotea entomon	0.5	0.6	43.5	1
Crustacea: Mysidacea (all)	0.0	0.0	4.3	0
Mysis relicta	0.0	0.0	4.3	0
Crustacea: Ostracoda (all)	0.0	0.0	4.3	0
Cythereis sp.	0.0	0.0	4.3	0
CHORDATA: Ascidiacea (all)	31.5	13.8	69.6	32
Rhizomolgula globularis	31.5	13.8	69.6	32
MOLLUSCA: Pelecypoda (all)	6.2	22.5	91.3	26
Cyrtodaria kurriana	1.2	2.3	47.8	2
Macoma balthica	4.8	19.3	82.6	20
Yoldiella intermedia	0.2	0.9	56.5	1
NEMATODA (all)	0.1	8.3	52.2	4
nematode (unidentified)	0.1	8.3	52.2	4
PRIAPULIDA (all)	0.1	0.1	17.4	0
Halicryptus spinulosus	0.1	0.1	17.4	0

Table 9. Food species consumed by Gt) *Gymnocanthus tricuspis* (N=36) and Is) *Icelus spatula* (N=17) collected at Site K, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	Gt	7.3	0.7	38.9	3
	Is	0.7	1.6	11.8	0
Antinoella sp.	Is	0.5	0.5	5.9	0
Chaetozone setosa	Gt	0.2	0.1	8.3	0
Chone infundibuliformis	Gt	3.1	0.0	2.8	0
Eteone flava	Gt	0.0	0.1	5.6	0
Nereis pelagica	Gt	0.6	0.0	2.8	0
Parahesione sp.	Gt	0.0	0.1	5.6	0
	Is	0.2	1.0	5.9	0
Pionosyllis sp.	Gt	0.0	0.0	2.8	0
Scalibregma inflatum	Gt	0.1	0.1	5.6	0
Spio filicornis	Gt	0.6	0.2	8.3	0
Thelepus cincinnatus	Gt	2.6	0.0	2.8	0
polychaete (unidentified)	Gt	0.0	0.0	2.8	0
ARTHROPODA: Crustacea (all)	Gt	88.9	93.4	100.0	182
	Is	99.0	97.9	94.1	185
Crustacea: Amphipoda (all)	Gt	2.8	1.7	63.9	2
	Is	30.3	27.6	70.6	41
Ampelisca eschrichti	Gt	1.7	0.1	5.6	0
Guernea nordenskioldi	Gt	0.0	0.0	2.8	0
Metopella longimana	Gt	0.0	0.2	16.7	0
	Is	0.9	2.1	17.6	1
Metopella nasuta	Is	1.1	4.7	29.4	2
Monoculodes intermedius	Is	7.1	6.8	35.3	5
Oediceros borealis	Gt	0.1	0.1	2.8	0
	Is	2.0	0.5	5.9	0
Orchomene minuta	Gt	0.1	0.2	8.3	0
Paroediceros lynceus	Gt	0.4	0.2	11.1	0
	Is	0.0	0.5	5.9	0
Pleustes media	Gt	0.0	0.0	2.8	0
	Is	0.3	1.0	11.8	0
Phoxocephalus holboli	Gt	0.0	0.0	2.8	0
Pontoporeia femorata	Gt	0.0	0.0	2.8	0
Rhachotropis aculeata	Is	2.0	0.5	5.9	0
Rhachotropis oculata	Is	12.6	3.1	23.5	4
Westwoodilla brevicalcar	Gt	0.1	0.4	11.1	0
	Is	2.3	2.6	17.6	1
Westwoodilla megalops	Is	1.4	3.6	23.5	1
amphipod (unidentified)	Gt	0.2	0.4	16.7	0
	Is	0.5	2.1	5.9	0

Table 9. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
Crustacea: Copepoda (all)	Gt	0.6	7.2	19.4	2
	Is	0.2	2.1	23.5	1
Calanus hyperboreus	Gt	0.0	0.1	8.3	0
Cyclopina schneideri	Gt	0.5	6.6	2.8	0
Metridia longa	Gt	0.0	0.1	2.8	0
Robertsonia tenuis	Is	0.0	0.5	5.9	0
Tisbe furcata	Is	0.0	1.0	11.8	0
copepod (unidentified)	Gt	0.0	0.4	8.3	0
	Is	0.2	0.5	5.9	0
Crustacea: Cumacea (all)	Gt	84.6	84.2	94.4	159
	Is	59.3	65.6	88.2	110
Diastylis scorpioides	Gt	0.1	0.1	5.6	0
Diastylis rathkei	Gt	84.3	83.5	88.9	149
	Is	58.8	65.1	82.4	102
Lamprops fuscata	Gt	0.2	0.6	19.4	0
	Is	0.5	0.5	5.9	0
Crustacea: Mysidacea (all)	Gt	0.8	0.1	5.6	0
	Is	9.0	1.0	11.8	1
Mysis oculata	Gt	0.8	0.1	5.6	0
	Is	9.0	1.0	11.8	1
Crustacea: Ostracoda (all)	Gt	0.1	0.2	13.9	0
	Is	0.2	1.6	5.9	0
Cytheridea punctillata	Is	0.2	1.6	5.9	0
Philomedes globosus	Gt	0.1	0.2	13.9	0
CHORDATA: Larvacea (all)	Gt	2.8	5.2	63.9	5
	Is	0.4	0.5	5.9	0
Oikopleura vanhoeffeni	Gt	2.8	5.2	63.9	5
	Is	0.4	0.5	5.9	0
ECHINODERMATA: Ophiuroidea (all)	Gt	0.0	0.0	2.8	0
	Is	-	-	-	-
Stegophiura nodosa	Gt	0.0	0.0	2.8	0
MOLLUSCA: Gastropoda (all)	Gt	0.1	0.1	11.1	0
	Is	-	-	-	-
Alvania cruenta	Gt	0.0	0.0	2.8	0
gastropod (unidentified)	Gt	0.1	0.1	8.3	0

Table 9. Continued

Food species	Fish. sp.	% total dry wt.	% total no.	% freq.	IRI
MOLLUSCA: Pelecypoda (all)	Gt	0.2	0.1	8.3	0
	Is	-	-	-	-
Astarte montagui	Gt	0.2	0.0	2.8	0
Musculus discors	Gt	0.0	0.0	2.8	0
Musculus niger	Gt	0.0	0.0	2.8	0
NEMERTINA (all)	Gt	0.3	0.4	25.0	0
	Is	-	-	-	-
nemertean (unidentified)	Gt	0.3	0.4	25.0	0
miscellaneous	Gt	0.5	-	13.9	0
	Is	-	-	-	-

Table 10. Food species consumed by *Myoxocephalus scorpius* (N=23) collected at Site L, expressed as percent of total dry weight of stomach contents, percent of total number of food items, percent frequency of occurrence, and Index of Relative Importance

Food species	% total dry wt.	% total no.	% freq.	IRI
ANNELIDA: Polychaeta (all)	20.6	11.8	34.8	11
Nereis pelagica	20.6	11.8	34.8	11
ARTHROPODA: Crustacea (all)	34.0	56.7	91.3	83
Crustacea: Amphipoda (all)	2.9	19.9	65.2	15
Anonyx nugax	0.0	0.4	4.3	0
Apherusa megalops	0.0	1.1	4.3	0
Atylus carinatus	0.0	0.7	4.3	0
Gammarus oceanicus	0.5	3.3	13.0	0
Gammarus setosus	2.0	10.3	34.8	4
Gammarus wilkitzkii	0.0	0.4	4.3	0
Orchomene minuta	0.0	0.4	4.3	0
Phoxocephalus holboli	0.0	0.4	4.3	0
Pontogeneia inermis	0.0	0.4	4.3	0
Weyprechtia pinguis	0.2	1.5	17.4	0
amphipod (unidentified)	0.0	1.1	8.7	0
Crustacea: Cumacea (all)	3.2	26.6	13.0	4
Diastylis rathkei	3.2	26.6	13.0	4
Crustacea: Decapoda (all)	28.0	5.9	52.2	18
Lebbeus groenlandicus	12.1	0.4	4.3	1
Lebbeus polaris	6.5	4.8	43.5	5
Sclerocrangon boreas	9.3	0.4	4.3	0
decapod (unidentified)	0.1	0.4	4.3	0
Crustacea: Mysidacea (all)	0.1	4.1	30.4	1
Mysis oculata	0.1	4.1	30.4	1
CHORDATA: Osteichthyes (all)	39.7	7.7	39.1	19
Gymnocanthus tricuspis	1.0	0.4	4.3	0
Icelus bicornis	2.2	0.4	4.3	0
Liparis sp.	0.5	0.4	4.3	0
Myoxocephalus scorpius	1.8	0.7	4.3	0
Myoxocephalus sp.	33.4	5.5	30.4	12
fish (unidentified)	0.8	0.4	4.3	0
MOLLUSCA: Gastropoda (all)	5.5	23.6	47.8	14
Margarites umbilicalis	5.5	23.6	47.8	14
MOLLUSCA: Pelecypoda (all)	0.0	0.4	4.3	0
Musculus niger	0.0	0.4	4.3	0